

Exhibit 1

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EDUCATION:

University of Chicago, Chicago, IL Ph.D. 1980 Microbiology
Northern Illinois University, Dekalb, IL B.S. 1975 Biology

PROFESSIONAL ORGANIZATIONS:

Society for Biomolecular Screening
AAAS

ACADEMIC APPOINTMENTS:

Adjunct Professor, Department of Chemical & Biochemical Engineering,
Rutgers University, Piscataway, NJ 1995-present

OUTSIDE ACTIVITIES

Program Committee, Photonics West-BIOS (SPIE), 1999 & 2000
Member, Board of Directors, Joint Biotechnology Training Grant, Rutgers U /
UMDNJ
External Reviewer, New Jersey Commission on Science & Technology, 1999-
2003
Organizing Committee & Session Chairman, IBC ScreenTech 2001-2004,
Protein Kinases 2002

EMPLOYMENT:

1986 -	<u>Johnson & Johnson</u>
2003- Technology	Corporate Director, Johnson & Johnson Office on Science and
2002-2003	Team Leader & Research Fellow, J&J PRD
1999 -2002	Team Leader & Research Fellow, R. W. Johnson PRI
1995 -1998	Team Leader, Exploratory Technology Team, R. W. Johnson PRI
1993-1995	Principal Scientist, Growth Factors Team, R. W. Johnson PRI
1990-1993	Principal Scientist, PRI Biotech, R. W. Johnson PRI
1989-1990	Senior Scientist, PRI Biotech, R. W. Johnson PRI
1986-1989	Ortho Diagnostic Systems, Inc.

Senior Scientist, DNA Probe Diagnostics

1985 - 1986 Cistron Technology Inc., Pine Brook, NJ
Senior Scientist

1983 - 1985 Merck & Co.
West Point, PA
Senior Research Microbiologist

1980 - 1982 National Cancer Institute-Frederick Cancer Research Center
Frederick, MD - Postdoctoral Fellow

PUBLICATIONS

Blank, K.; Mai, T.; Gilbert, I.; Schiffmann, I.; Rankl, J.; Zivin, R.; Tackney, C.; Nicolaus, T., Spinnler, K.; Oesterheld, F.; Benoit, M.; Clausen-Schaumann, H. and Gaub, H.E. A force-based protein biochip. *Proc. Nat. Acad. Sci. USA* (2003) 100: 11356-11360

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Thurmond, Robin L.; Wadsworth, Scott A.; Schafer, Peter H.; Zivin, Robert A.; Siekierka, John J. Kinetics of small molecule inhibitor binding to p38 kinase. *European Journal of Biochemistry* (2001), 268(22), 5747-5754.

Kraft, Patricia J.; Haynes-Johnson, Donna E.; Patel, Lekha; Lenhart, Judy A.; Zivin, Robert A.; Palmer, Stephen S. Fluorescence polarization assay and SDS-PAGE confirms matrilysin degrades fibronectin and collagen IV whereas gelatinase A degrades collagen IV but not fibronectin. *Connective Tissue Research* (2001), 42(2), 149-163.

McMillian, Michael K.; Grant, Elfrida R.; Zhong, Zhong; Parker, J. Brandon; Li, Li; Zivin, Robert A.; Burczynski, Michael E.; Johnson, Mark D. Nile Red binding to HepG2 cells: an

improved assay for in vitro studies of hepatosteatosis. *In Vitro & Molecular Toxicology* (2001), 14(3), 177-190.

Michael E. Burczynski, Michael McMillian, James B. Parker, Stewart Bryant, Angelique Leone, Elfrida R. Grant, Jacqueline M. Thorne, Zhong Zhong, Robert A. Zivin, and Mark D. Johnson "Cytochrome P450 Induction in Rat Hepatocytes Assessed by Quantitative Real-Time Reverse-Transcription Polymerase Chain Reaction and the RNA Invasive Cleavage Assay" *Drug Metab Dispos* 2001 29: 1243-1250.

Elfrida R. Grant, Monica Errico, Stuart Emmanuel, Daniel Benjamin, Michael McMillian, Scott A. Wadsworth, Robert A. Zivin, and Zhong Zhong 2001 "Inhibition of the p44/42 mitogen-activated protein kinase pathway is neuro-protective in a cell-culture model of excitotoxicity". *Biochem Pharm* 2001 62: 283-296.

Xu, Danlin, Alegre, Maria-Luisa, Varga, Sally S., Rothermel, Annette L., Collins, Alexander M., Pulito, Virginia L., Hanna, Lewis S., Dolan, Kevin P., Parren, Pual W.H.I., Bluestone, Jeffrey A., Jolliffe, Linda K., and Zivin, Robert A. 2000 "In Vitro Characterization of Five Humanized OKT3 Effector Function Variant Antibodies." *Cell. Immunol.* 200(1), 16-26.

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Woodle, E. S.; Bluestone, J. A.; Zivin, R. A.; Jolliffe, L. K.; Auger, J.; Xu, D.; Thistlethwaite, J. R. 1998 "Humanized, nonmitogenic OKT3 antibody, huOKT3 γ (Ala-Ala): initial clinical experience." *Transplantation Proceedings.* Vol. 30, 1369-1370.

Adair, J.R., Zivin, R., Guzman, N.A., Iqbal, K. 1998 "Therapeutic Aspects: Monoclonal-based Pharmaceuticals." In: *Pharmaceutical Biotechnology for Pharmacists and Pharmaceutical Scientists* (Crommelin, D.J.A., Sindelar, R.D., Eds.) Harwood Academic Publishers GmbH, Chur, Switzerland.

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Alegre, M.L., Peterson, L.J., Xu D., Sattar, H.A., Jeyarajah, D.R., Kowalkowski K., Thistlethwaite, J.R., Zivin, R.A., Jolliffe, L., Bluestone J.A. 1994 "A Non-activating Humanized anti-CD3 Monoclonal Antibody Retains Immunosuppressive Properties in vivo." *Transplantation*, Vol. 57, 1537-1543.

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Pearson, M.L., Benfield, P.A., and Zivin, R.A. 1982. "Introduction: Muscle Gene Structure and Expression." In: *Muscle Development: Molecular and Cellular Control*. (Pearson, M.L. and Epstein, H.F. Ed.) Cold Spring Harbor Laboratory.

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Zivin, R.A. 1980. "Physical and Transcriptional Mapping of Bacteriophage N4." Ph.D. Thesis, University of Chicago, IL.

Zivin, R.A., Malone, C., Rothman-Denes, L.B. 1980. "Physical Mapping of Genome of Bacteriophage N4." Virology 104:205-218.

Falco, S.C., Zivin, R. A., Rothman-Denes, L.B. 1978. Novel Template Requirements of Bacteriophage N4 Viron RNA Polymerase. Proc. Natl. Acad. Sci. USA 75:3220-3224.

PATENTS

Bluestone, Jeffrey A; Zivin, Robert A. ;Jolliffe, Linda K. 2002 US6491916 B1. Methods and materials for modulation of the immunosuppressive activity and toxicity of monoclonal antibodies.

Jolliffe, L.K., Zivin, R.A., Adair, J.A., Athwal, D.S. 1999 US5929212 CD3 specific recombinant antibody

Bluestone, J.A., Jolliffe, L.K., Zivin, R.A. 1999 USP 5885573 Methods and materials for modulation of the immunosuppressive activity and toxicity of monoclonal antibodies

Johnson, D.L. and Zivin, R.A. 1998 USP 5767078 Agonist Peptide Dimers

Scolnick, E.M. and Zivin, R.A. 1990 USP 4952561 Cardiac Atrial Peptides

Patent Applications

Burnett, Paul; Robertson; Janet, Zivin, Robert Allan. An Electrophysiology Assay Method, Serial No. 60/401156; An Electrophysiology Assay Method, Serial No. 60/434917 2002

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Zhong, Zhong; Kelly, Glen L.; Mercolino, Thomas J.; Zivin, Robert; Siekierka, John J. Cell-based assay for signal transduction comprising chimeric ligand-inducible transcription factors and its therapeutic application. PCT Int. Appl. (2001), 53 pp. CODEN: PIXXD2 WO 0121215

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Jolliffe, L.K., Pulito, V.L., Zivin, R.A. 1996 WO 96/40921 CDR-grafted anti-tissue factor antibodies and methods of use thereof.

Awards

J&J Achievement Award, 1996. Small molecule EPO mimetics.

PRI Discovery Award, 1991. Humanization of monoclonal antibodies.